Aquaculture in Utah

Newsletter on Current Trends in Aquaculture

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THE NEW ZEALAND MUD-SNAIL INVADES UTAH

The New Zealand mudsnail (NZMS) is a freshwater mollusk that originated from New Zealand. It has invaded the western United States and poses a threat to western trout streams. It was first found in the U.S. in the mid-Snake River Valley near Hagerman, Idaho in 1987. It may have come into the valley in water with trout shipped to a local trout farm from a previously contaminated area. It was most likely introduced into the Snake River from fish escaping one of the many trout farms in the area. In the late 1980s, the NZMS was discovered in the Madison River near West Yellowstone, Montana. Since then is has been documented in Oregon, Idaho, Arizona, Wyoming, California, Utah and Canada. It now occurs in three of the four major river systems in Yellowstone National Park and in Grand Teton National Park. Densities of up to 500,000 NZMS per square meter have been reported in rivers in these parks. The snails can "blanket" the bottom of a streambed and literally smother out existing stream life.

The NZMS reaches a length of about 6.0 mm, but it is typically 4 to 5 mm long (approximately 1/8" average). They are brown or black in color and have 5 conic whorls on their outer shell. The species in the western United States (*Potamopygrus anatipodarum)* has a hardened operculum on its outer shell, which can close under adverse conditions. This makes it very difficult to control and destroy. This species has even been reported to pass through a trout's and bird's digestive tract unharmed. Thus, a trout may literally starve to death on a diet of mudsnails.

The snails in the western U.S. are asexual live bearers. These snails are all females that do not have to mate to produce offspring. In one year a single female can produce 3.125 x 10 snails. The NZMS live in silt, sand, cobble, riffle, run and vegetated river habitats. They are also found in natural lakes and hatcheries. Several of the state hatcheries in southern Idaho are reported to support mudsnail populations. Therefore, trout hatcheries may be an unsuspecting vehicle for transporting mudsnails to new sites. Their temperature tolerance range is 33 to 77 degrees Fahrenheit (66 deg. F. optimum). Population decreases have been reported in cold winter months. It can survive out

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Fish Feed Should Be Properly Maintained For Fish

Fish feed quality can deteriorate with age and exposure to the elements. Fish feeds are enhanced with vitamins and minerals for the fish. However, when feeds are left out in the weather or in hot temperatures, their quality is lessened. Vitamins are lost from the feed when it is directly exposed to heat and sunlight. To maintain viable levels of nutrients, feeds should be stored in cool places out of direct sun and heat. It is a good idea to not let your fish feed build up long shelf times. It is best to rotate it and strive to feed your fish a continual supply of fresh food that is not outdated. After being stored for a long period of time, unused feed quality will lesson. Fish will be healthier if feed is adequately cared for.

In addition, one can save money by ordering less feed and rotating it so as to provide the best quality of diet.

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LATE FEE ASSESSED AFTER DECEMBER 31st

The annual renewal fee for licenses (CORs) needs to be received before December 31st to avoid unnecessary late fees. The aquaculture and aquatic animal health rule (R58-17-1) has been revised and states that there will be a late fee assessed if the COR renewal fee is not received by Agriculture by December 31st of each year. The new rules R58-17-17(F) and 18(F) read that "A fee of $30 for fee-fishing and $150 for aquaculture and brokers respectively needs to be submitted with the application for the COR. This fee shall be submitted annually for COR renewal. The annual deadline for COR renewal is December 31st. If the late COR renewal application and fee is not received by February 28th, the COR will be no longer be valid and the license will become void."

In the past the late fee was waived if the COR renewal fee was not paid by December 31st. However, the law has now changed, and the Department is required to assess a late fee if the renewal fee is not paid by December 31st. A late fee of $25.00 per COR will be assessed on renewals received after December 31st.

Mosquito Fish Fight West Nile Virus

Cases of the West Nile Virus have emerged from the East Coast and have traveled as far West as Colorado and Wyoming. Mosquitoes can transmit the virus from birds to humans and other animals. Infected birds have been detected in mid-western states and in Canada. The West Nile virus, which can cause deadly swelling of the brain or encephalitis, has killed several people within the United States. The disease is most dangerous to the elderly

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Fish Feed

Many vitamins are susceptible to destruction by oxidation in the presence of excess heat. Heat causes feed to become rancid by oxidation. Dry feeds not requiring refrigeration need to be stored in areas that are dry, well ventilated, and cool. Feeds that have exceeded the recommended shelf life should not be used. Any feed that appears abnormal (e.g. excess fines, moldy, overly crumbly or soft, contaminated with insects, off color and off odors) should not be fed. Old feeds that have not exceeded the shelf life should be fed first when new feed deliveries are made. Open feed bags should be fed within one to two days.

Some growers believe that if feed is stored in a freezer, then it can be kept indefinitely. Dry feeds stored in freezers can also become rancid. Containers of feed should not be left outside exposed to light and heat. Automatic feeder devices and bulk storage bins should be isolated against excessive temperatures (80 degrees F. or above).

Mark Martin Seeks Training At WADDL

From May 5-10, 2002 Mark Martin received lab training at the Washington Animal Disease Diagnostic Laboratory (WADDL) in Pullman, Washington. During this time he observed and worked with all members of the Aquatic Health Service and participated in routine laboratory procedures in the areas of salmonid virology and cell culture, bacteriology and parasitology. Pathogens of concern for trout export were emphasized, especially those pertaining to trout health testing requirements for producers in the state of Utah. The viruses covered also included those tested for warm water fish in Utah.

Mark spent 6 days at WADDL in an effort to fulfill a partial requirement for certification as a fish health inspector for the American Fisheries Society. Mr. Martin was supervised at WADDL by the Aquatic Health Service director, Dr. Danielle Stanek, DVM.

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West Nile Virus

or people with weak immune systems. Most people exhibit flu like symptoms when bit by an infected mosquito and usually do not die.

Mosquitoes lay eggs on water surfaces. The eggs hatch into larvae that grow into adults and fly from the water. Males eat nectar and females bite animals, using the blood to produce protein for their eggs. Fish growers have looked for a way to control the virus with mosquito fish (*Gambusia),* which are commonly used to control the pests. The fish eat mosquitoes before they have an opportunity to leave the water. Once the mosquitoes become adults, they are very hard to control.

Mosquito fish may be obtained from your local mosquito abatement district. They are the cheapest and most efficient way to control mosquitoes. The *Gambusia* may be very helpful in reducing the threat of the virus, but they do not eat all of the mosquito larvae. Another component of a mosquito abatement program includes public education to eliminate habitats such as standing water in outdoor containers where mosquitoes may breed.

FISH BYTES

The Fish Health Program of the Utah Department of Agriculture and Food annual report is included for July 1, 2001 to June 30, 2002 (FY 2001). The annual report for the previous year (FY 2000) is also included for comparative purposes.

- At the end of FY 2001, 31 commercial aquaculture facilities and 95 fee- fishing facilities were licensed with the UDAF. At the end of FY 2000, 30 commercial aquaculture facilities and 93 fee-fishing facilities were licensed.
- Twenty-five aquaculture inspections were conducted for the presence of prohibited pathogens this fiscal year. Thirty-one aquaculture inspections were conducted last fiscal year.
- Seventy on-site fish health consultations were conducted this fiscal year and seventy were conducted last fiscal year.
- On-site water quality tests were conducted at 52 sites this fiscal year and 40 sites last fiscal year.
- There were 16 diagnostic cases involving fish losses this fiscal year.
- Fish samples collected from the 25 sites included over 3,714 fish sampled (1996 for BKD, 3414 for viruses and 1,590 for whirling disease) this fiscal year. Fish samples collected from 30 sites included over 3,148 fish sampled last fiscal year.
- Sixty-nine entry permits were issued for 2,983,169 fish and eggs during FY 2002 and fifty-two entry permits were issued for 4,473,299 fish and eggs during FY 2001.
- Thirteen government, 29 aquaculture, 12 fee fishing and 15 special event entry permits were issued during FY 2002. During FY 2001 at total of 12 government, 20 aquaculture, 8 fee fishing and 12 special event entry permits were issued.
- There are 23 brine shrimp companies currently being inspected, and 60 were inspected during the last 12 months. Fish Health began inspecting brine shrimp plants in FY 2002.
- New license applications for FY 2002 included 6 fee-fishing sites, two aquaculture sites and one fish processing plant.

New Fee-Fishing and Aquaculture Facilities Licensed by UDAF

Fifteen new facilities have been issued CORs since our last newsletter. The three aquaculture facilities include Robert Timms (Moroni), John Lowe (Huntsville) and Mark McDougal (Erda). The eleven fee-fishing facilities include James Fauver (Castle Valley), Chris Stuhmer (Summit County), Monte Munns (Brigham City), Rex Mumford (Huntsville), Bruce Kochevar (Sandy), Paul Beard (SunCrest), Fenton DeMill (Manti), James Jensen (Kyune), Wen Wang (S. Ogden), John Lowe (Huntsville) and Ben Ball (Hurricane). Fish Mongers (Bingham) was the only new Fish Processing Plant. COR applications for five additional facilities are pending review.

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Mud Snail

of the water for days.

Several practices may be implemented to prevent the spread of this snail. The NZMS may be transported by humans and, once it becomes established, is not easily removed. It does not survive long in environments over 77 degrees Fahrenheit. Therefore, it is recommended that anglers thoroughly clean their boots and place them in a hot, dry area for at least one day before entering another body of water. Boots may also be sprayed with 409 or a similar soap solution before placing them in the hot sun for several hours. Immersing boots in very hot water or placing fishing equipment in a hot car on a sunny day should also kill the snails. In winter, subjecting potentially contaminated fishing equipment to a hard freeze should also kill the NZMS. All fishing or sampling gear should be rinsed and cleaned after each use.

The NZMS has been reported by Don Archer and Tim Miles (personal conversations) of the Utah Division of Wildlife Resources in the Green River below Flaming Gorge Reservoir. The NZMS has also been reported to be causing problems in the trout fishery in the lower Colorado River system. A researcher at Washington State University is experimenting with biological means to control the species. He is conducting quarantined laboratory experiments to infect these snails with trematodes native to New Zealand that are parasites of the mudsnail. This parasite is apparently not present in the U.S., but serves to keep the populations of the snail under control in New Zealand. Currently, the UDAF is looking into chemical possibilities as a way to help prevent the spread of the NZMS. The most important thing we can do at this time is ensure that we do not spread the snail through careless practices.

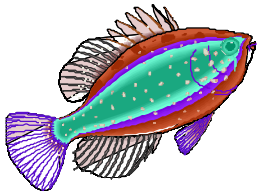
(*Permission granted from David C. Richards to use information from his article written in the Aquatic Nuisance Species Digest, February 2002)*

Castle Valley Ranch Opens Fee-Fishing Ponds

On June 4, 2002 Kent Hauck and Mark Martin conducted an inspection at Castle Valley Ranch of their ponds. Mr. Jim Fauver (ranch manager and current Emery County Assessor) was seeking a permit for his two ponds to be licensed for fee fishing. Castle Valley Ranch is located "in the heart of the real west" between Castle Dale and Emery on Highway 10. On July 1, 2002 the Utah Department of Agriculture and Food issued permits for two ponds for largemouth bass, bluegill and rainbow trout fishing. In addition to fishing and deer and elk hunting, the ranch also offers ATV trail riding, horseback riding, skeet shooting and upland game bird hunting. The hunting has no limit on pheasants, quail, chukkars and Hungarian partridge. At the end of the day one can retire to a great meal, skeet shooting, and an evening's rest in the authentic old west ranch house.

Lucky 7 Ranch Offers Trout Fishing Experience

On July 25, 2002 the Lucky 7 Ranch fish health officials from the Utah Department of Agriculture and Food tested trout ponds for water quality. The ranch is located in Utah's spectacular Color Country on Highway 89 in Hatch, Utah between Zion and Bryce Canyon National Parks. The ranch sits on more than 5,000 acres of rolling meadows and rugged mountain terrain. It offers rainbow trout from each of its four fish ponds. The ranch is owned and operated by Russ and Scott Walter. In addition to fishing, the ranch also offers mountain bike and ATV trails. Accommodations include the newly remodeled Stage Stop Motel, a well supplied general store, fly and tackle shop, and fast food and snack shop. At an elevation of over 7,200 feet, the Lucky 7 Ranch provides a unique vacation and fishing adventure.



Mark McDougal Opens Aquaculture Facility in Erda

Mark McDougal and Kelly Huntsman have begun the operation of an indoor aquaculture facility in Erda, Utah. On April 26, 2002 Aqua Farms Inc. was given a COR from the Utah Department of Agriculture and Food to rear and sell a number of fish species. Rainbow trout, chinook salmon, brook trout, brown trout, largemouth bass, channel catfish, white sturgeon, tropical crayfish (redclaw), barcoo grunter, murray cod, turbot, lobster halibut, mahi-mahi (dolphin fish), grouper and barfin flounder have been approved for the facility. The current permit authorizes en masse harvest and sale of dead fish. Live sales of channel catfish, largemouth bass, rainbow trout, brook trout, brown trout and tropical crayfish may occur following successful inspection. Other species require the approval of the sources prior to importation into Utah.

Mr. McDougal is rearing fish in large circular plastic tubs within a large, converted barn. The water is obtained from an adjacent well. We wish Aqua Farms success in this large-scale venture.

Rob Tims Operates Freshwater Shrimp Aquaculture Facility

On June 26, 2002 Kent Hauck and Mark Martin conducted an on-site inspection of a fresh water shrimp aquaculture facility in Moroni, Utah. The facility is owned and operated by Robert Tims. He was subsequently issued a permit to sell chill killed shrimp. The scientific name of the freshwater shrimp he rears is *Macrobrachium rosenbergii.* He currently operates three ponds on the top of a hillside overlooking Moroni. They are serviced by a geothermal well. Agriculture is excited about the possibilities the shrimp industry may bring to Utah's aquaculture industry. Mr. Tims has plans for major expansion of his shrimp farm. The Utah Division of Wildlife Resources has previously issued him a permit to rear alligators.